

**CALCIUM ALUMINATE CEMENT COMPOSITIONS
FOR SOLID FREEFORM FABRICATION**

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ABSTRACT OF THE DISCLOSURE

The present invention is drawn toward materials, methods and systems
10 for solid free-form fabrication of three dimensional objects. In one embodiment,
a method can comprise a) applying a particulate blend in a layer, wherein the
particulate blend includes calcium aluminate particulates and polymeric binder
particulates; b) dispensing an aqueous polyol-containing liquid vehicle onto a
predetermined area of the particulate blend to form hydrated cement in the
15 predetermined area; c) hardening the hydrated cement; and d) repeating steps
a) through c) such that multiple layers of the cement are formed that are bound
to one another, thereby forming the three dimensional object.